Journal International Journal of Embedded Computer Engineering (IJEmCE), Vol. 1, No. 1, October 2025: 12–30.
https://ejurnal.ung.ac.id/index.php/IJEmCE

Development of a Web-Based Boarding House Information System in Sorong Regency Using PHP and MySQL

Elpandro L. Manalu[1*], Rahmad Hidayat Dongka.[2]
Universitas Nani Bili Nusantara, Sorong[1]
Universitas Negeri Gorontalo, Gorontalo[2]

*elpandromanalu@gmail.com

Abstract -- The rapid advancement of technology has significantly eased information access, especially through internet-based platforms. Boarding houses are an essential need for students and workers in Sorong Regency who require affordable and comfortable accommodations near campuses or workplaces. However, searching for suitable boarding houses is often challenging and time-consuming, particularly for newcomers. This research develops a web-based boarding house information system using PHP and MySQL to facilitate users in finding boarding houses according to their needs. The system provides search features based on location, facilities, and rental price, and allows owners to market their boarding houses online. A waterfall software development methodology was applied, including requirements analysis, design, implementation, and testing. The evaluation results demonstrate that the system is responsive, reliable, and capable of efficiently handling user requests. This study contributes to improving access to boarding house information in Sorong Regency, benefiting both tenants and owners.

Keywords:
Boarding House,
Information System,
MySQL,
PHP,
Web-based

Article History:
Received: October 7, 2025
Revised: October 7, 2025
Accepted: October 8, 2025
Published: October 8, 2025

DOI: 10.xxxxx/ijemce.v1i1.xxxxx

I. INTRODUCTION

The growth of internet technology has made information dissemination faster and more efficient. Websites have become the most widely used media for accessing information, including business advertisements and accommodation services. In Sorong Regency, boarding houses are a primary necessity for students and workers. However, searching for proper accommodation that meets the criteria of affordability, comfort, and strategic location is difficult and time-consuming. This research aims to develop a user-friendly web-based boarding house information system to improve accessibility and efficiency in accommodation searches.

II. LITERATURE REVIEW

A. Internet and Web Technology

The internet is a global communication network that connects millions of computers worldwide, enabling information exchange and digital services. Websites, built with HTML, CSS, JavaScript, and server-side languages like PHP, provide interactive platforms for information and services[1].

B. Information Systems

An information system is a combination of hardware, software, and human resources that process data into useful information. For accommodation, information systems facilitate data management for both providers and consumers [2].

C. PHP and MySQL

PHP is an open-source server-side scripting language widely used for developing dynamic web applications. MySQL is a relational database management system often integrated with PHP to store, manage, and retrieve structured data [3].

D. System Design

A Structured design methods, such as the Waterfall model, emphasize systematic development through

requirement analysis, system design, implementation, and testing. Supporting tools such as UML diagrams and ERD (Entity Relationship Diagram) are used to model the system [4], [5].

III. METHODOLOGY

The research employed the Waterfall Software Development Life Cycle (SDLC), consisting of:
1. Requirement Analysis – Identifying user needs, including search, booking, and data management [6].
2. System and Software Design – Designing user interface, architecture, and database structure [7].
3. Implementation and Testing – Developing the system using PHP and MySQL, followed by functional testing [8].
4. Integration and Maintenance – Ensuring system reliability and performance under real conditions [9].

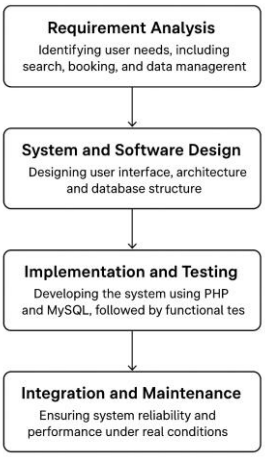

Figure 1. The Waterfall Software Development Life Cycle (SDLC)

The study was conducted in Sorong Regency, focusing on multiple boarding houses as case studies. Data was collected through observation, interviews with house owners, and literature studies.

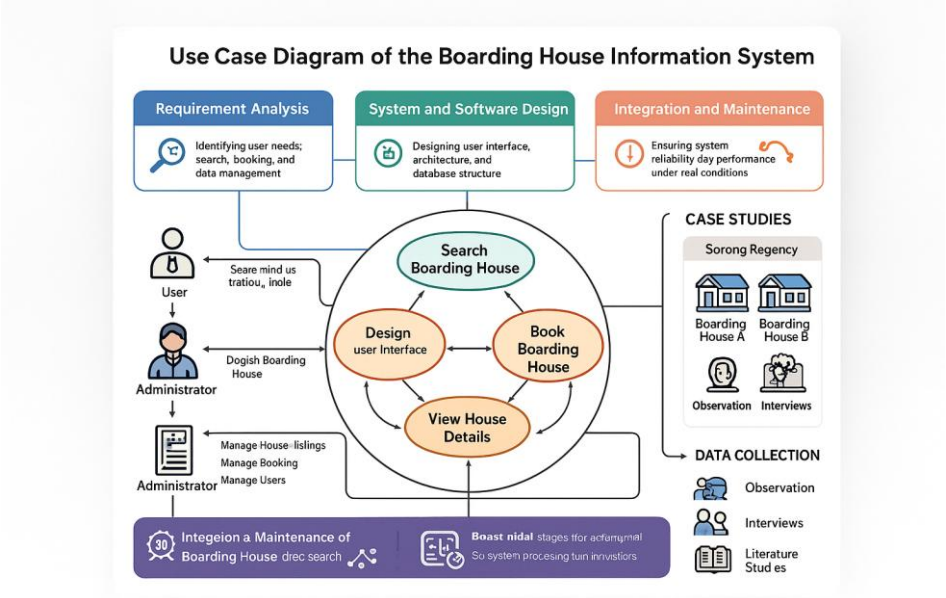

Figure 2. Use Case diagram of the boarding house information system

Here are some views of the user interface (UI) of the boarding house information system that has been designed:

A. House Seeker User

1. Main Page: The main page display of the system shows a list of available boarding houses with easy search and navigation features.

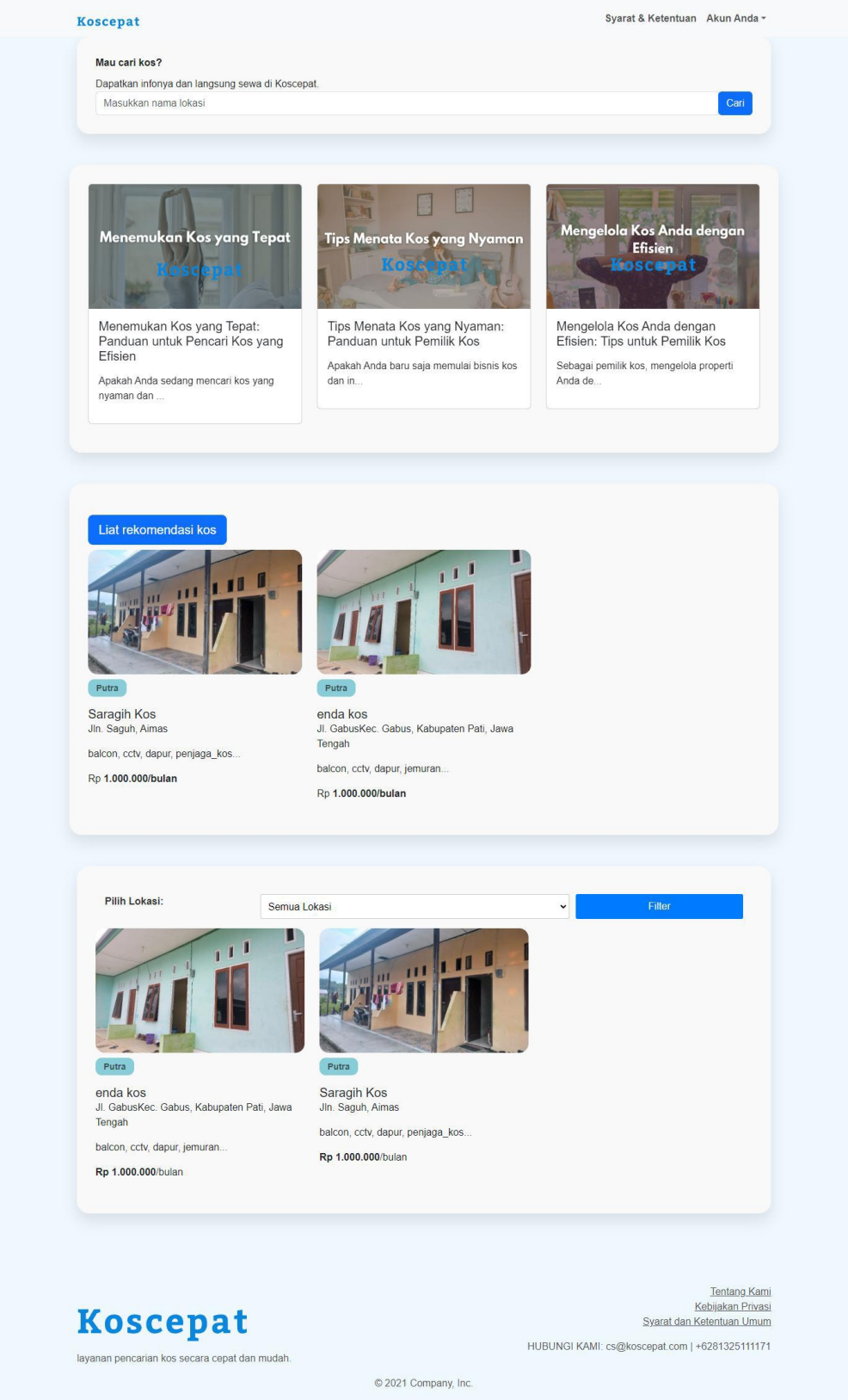

Figure 3. Homepage interface of the system

2. Boarding House Detail Page: This page displays detailed information about a boarding house, including images, description, facilities, and price.

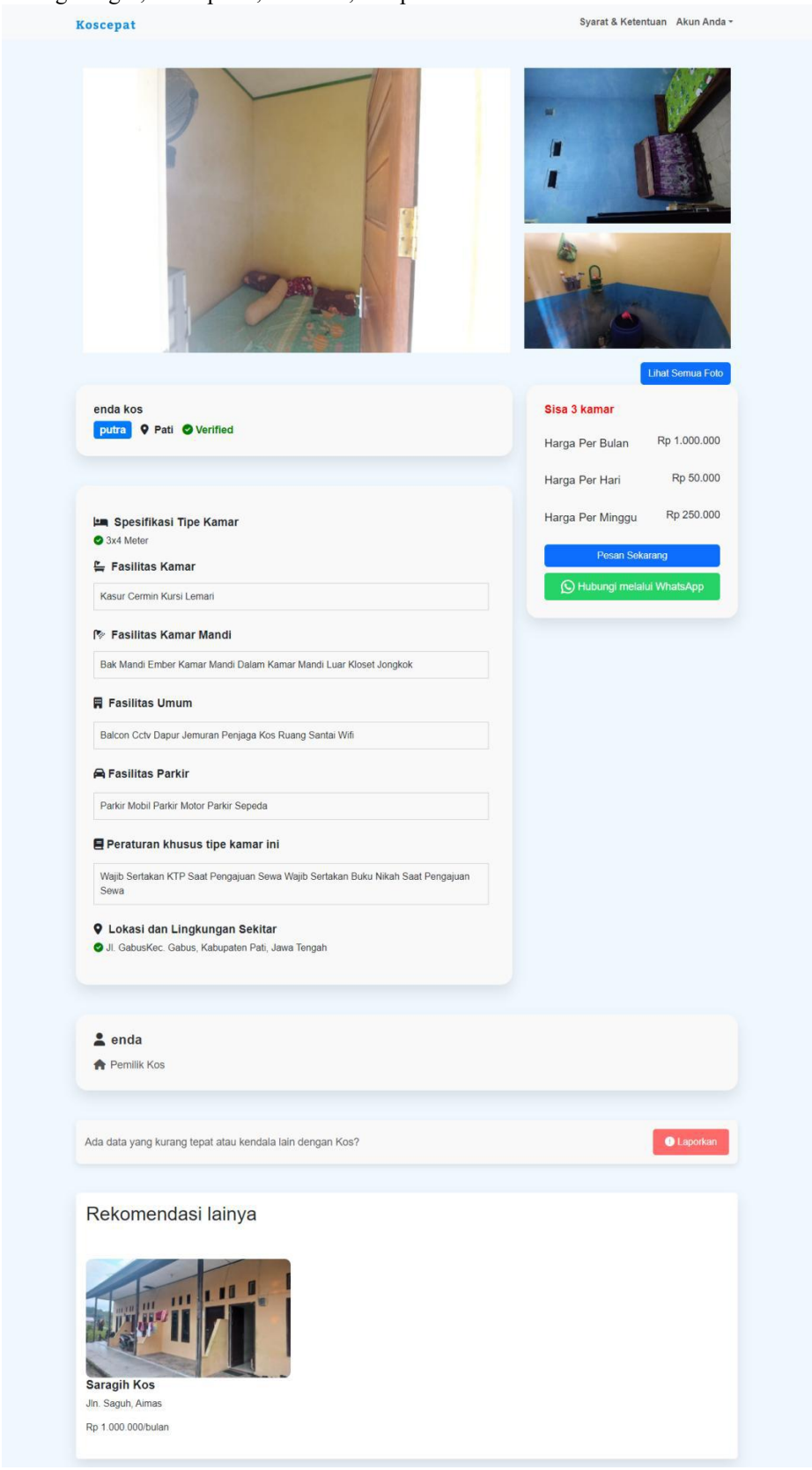

Figure 4. Boarding house detail page

3. Booking Page: This page allows the user to select their desired room and proceed with the booking process.

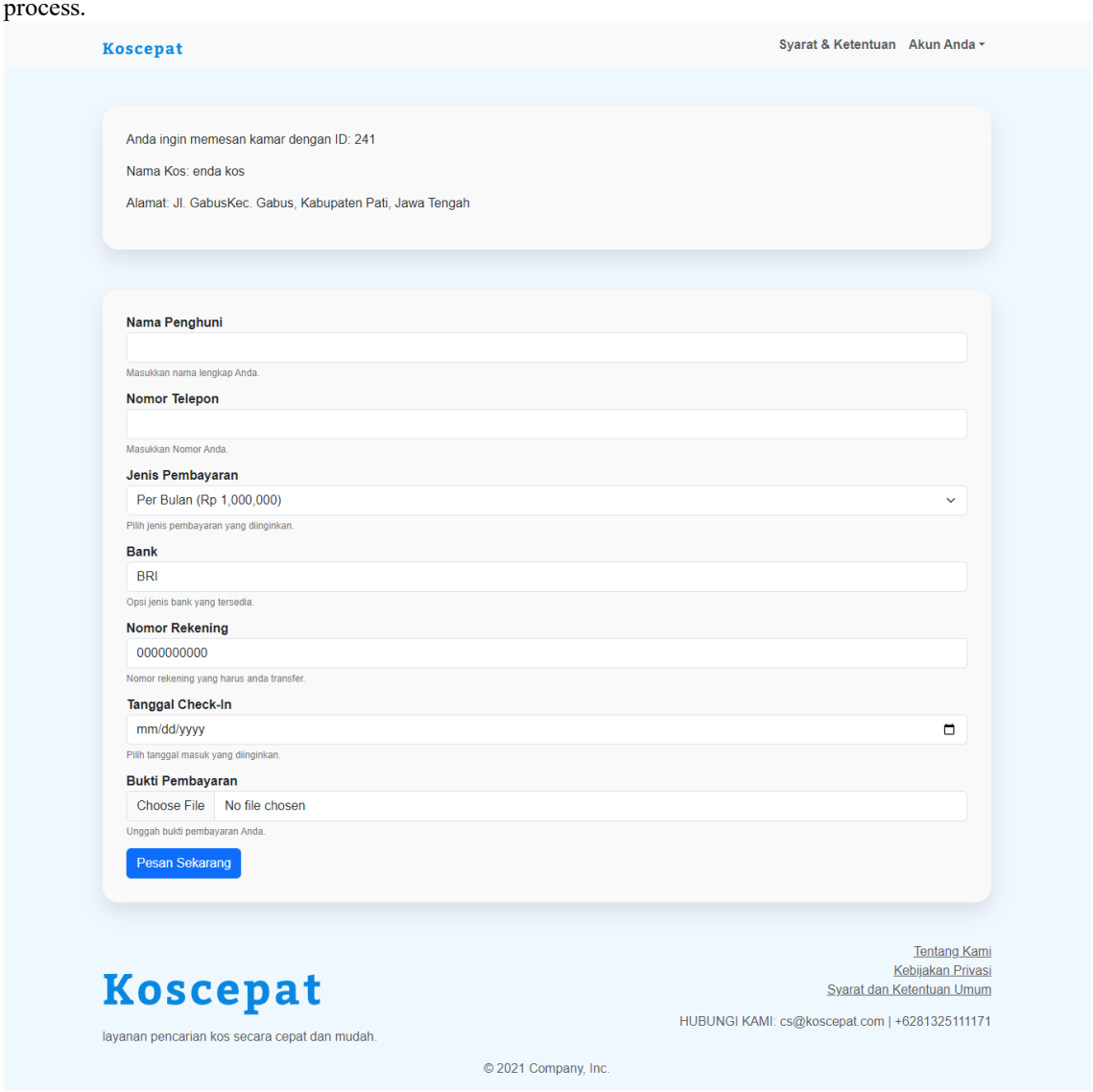

Figure 5. Booking page for user

4. User Profile Page: This page allows the user to view and manage their personal information.

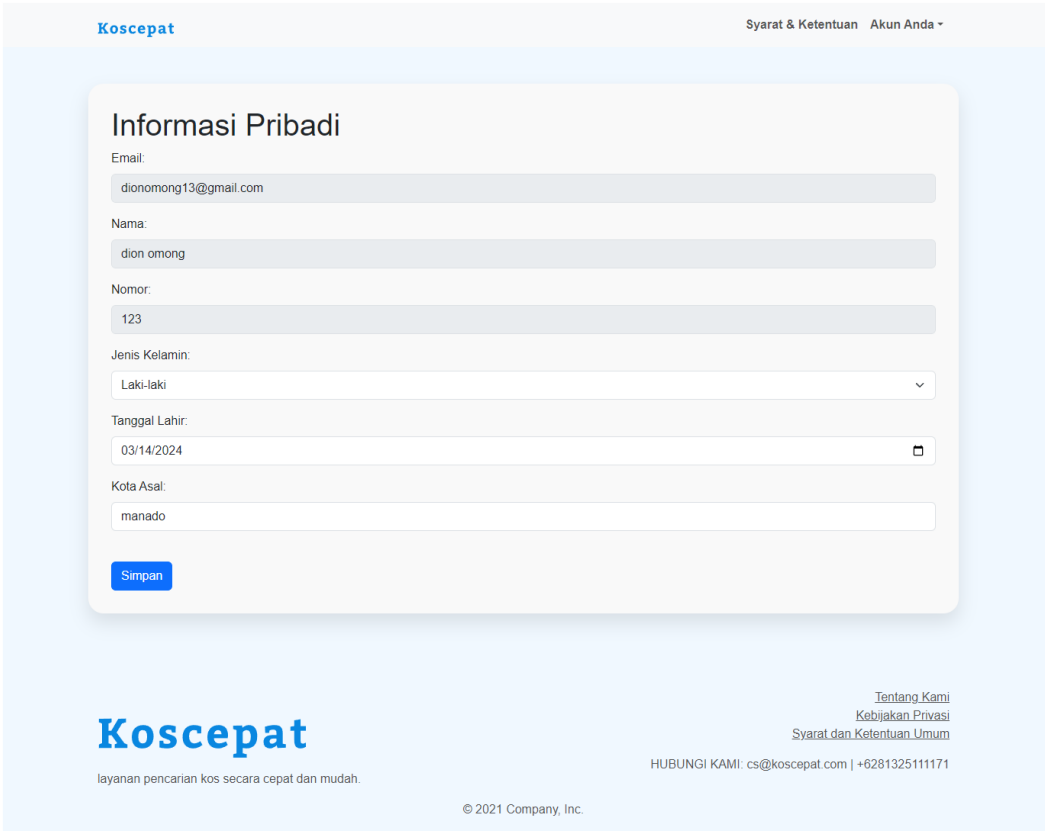

Figure 6. Website user profile

5. Transaction History Page: This page allows the user to view the history of their boarding house transactions, including payment status and order details.

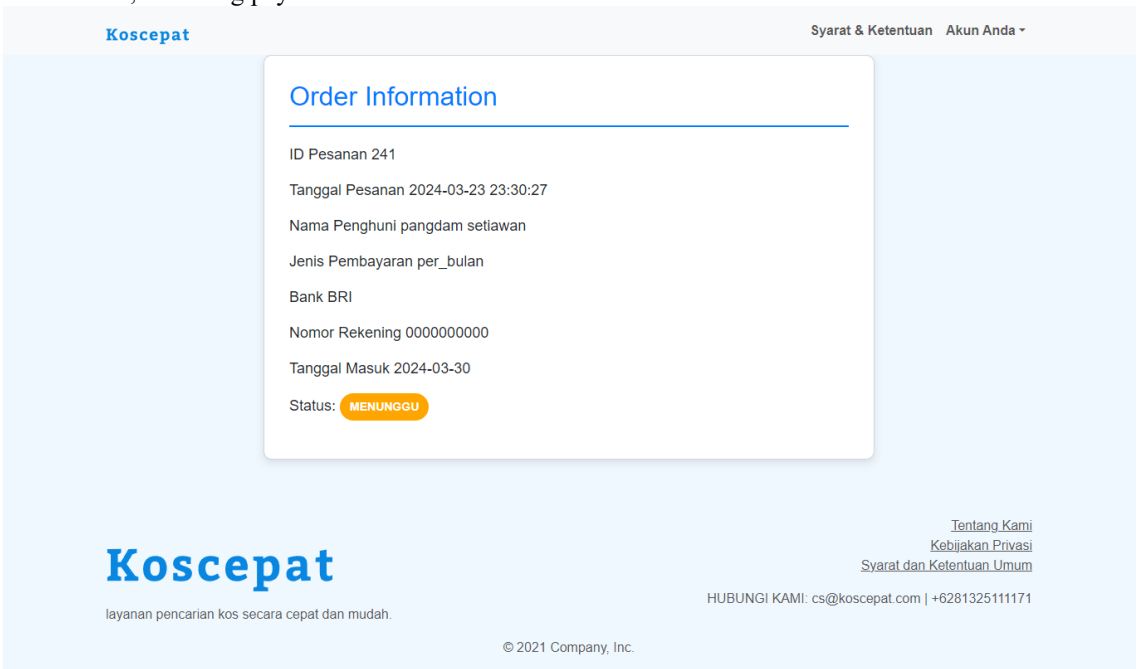

Figure 7. Order History Page

B. Boarding House Owner User

1. Main Page / Dashboard: The main page of the system displays a list of available boarding houses owned by the user, featuring easy search functionality and a navigation system.

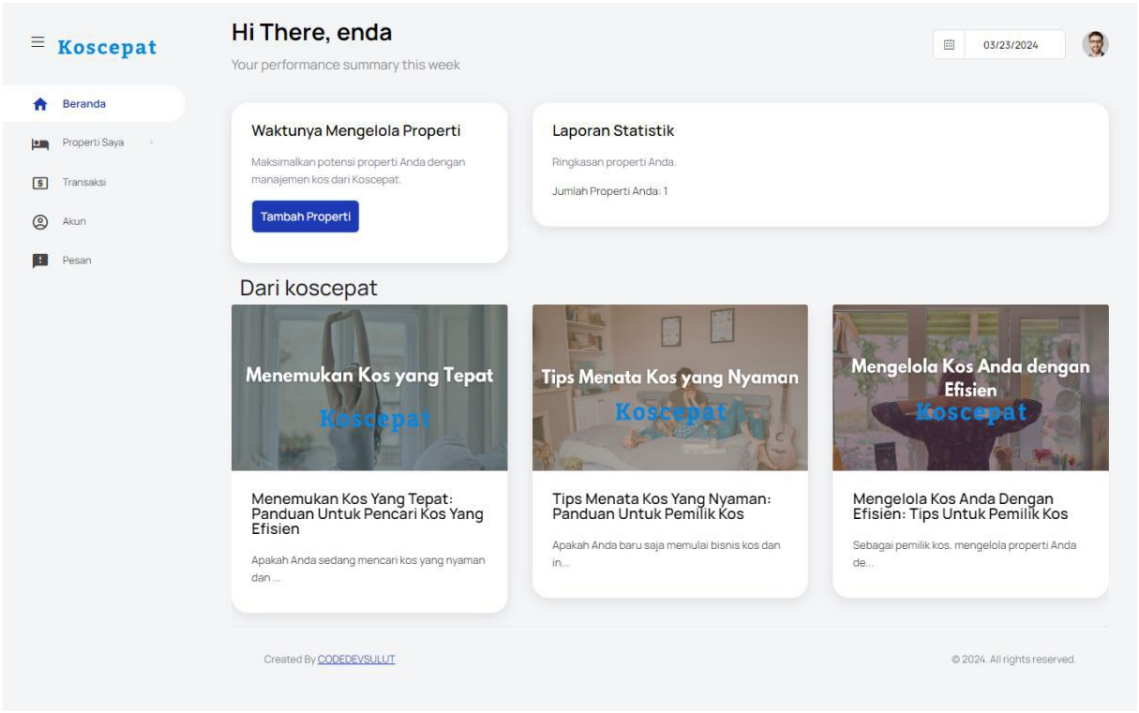

Figure 8. Boarding house owner dashboard page

2. Boarding House List Page: The boarding house list page allows boarding house owners to see the number of boarding houses they have previously created.

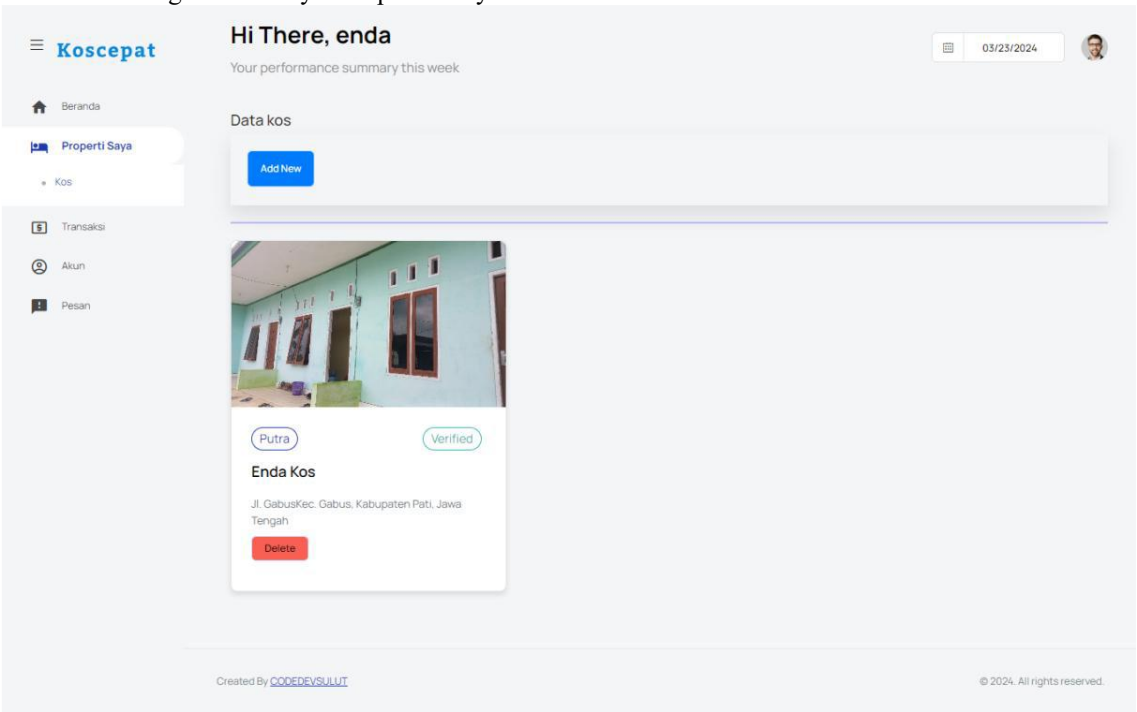

Figure 9. Boarding House List Page

3. Add Boarding House Page: This page is used when a boarding house owner wants to add a boarding house.

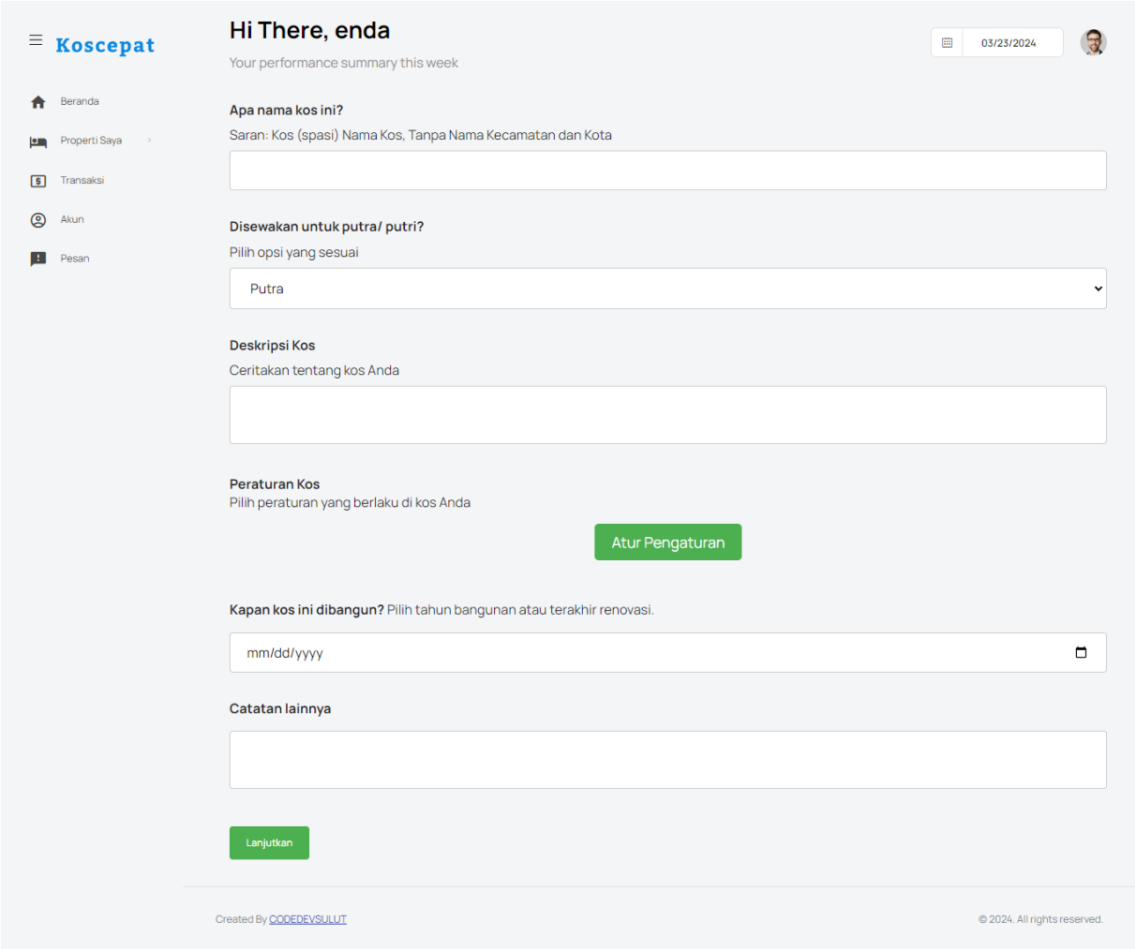

Figure 10. Add Boarding House Page

4. Transaction Page: This page allows boarding house owners to view all existing transactions. They can view proof of transactions sent by boarding house searchers and then confirm the related transactions.

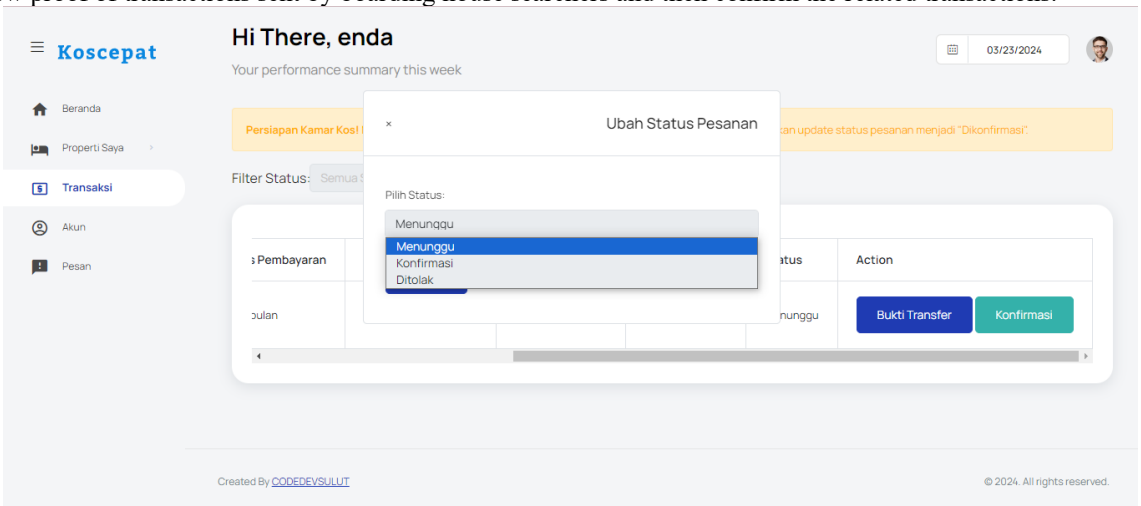

Figure 11. Transaction Page

5. Message Page: The message page allows boarding house owners to view messages sent by the system.

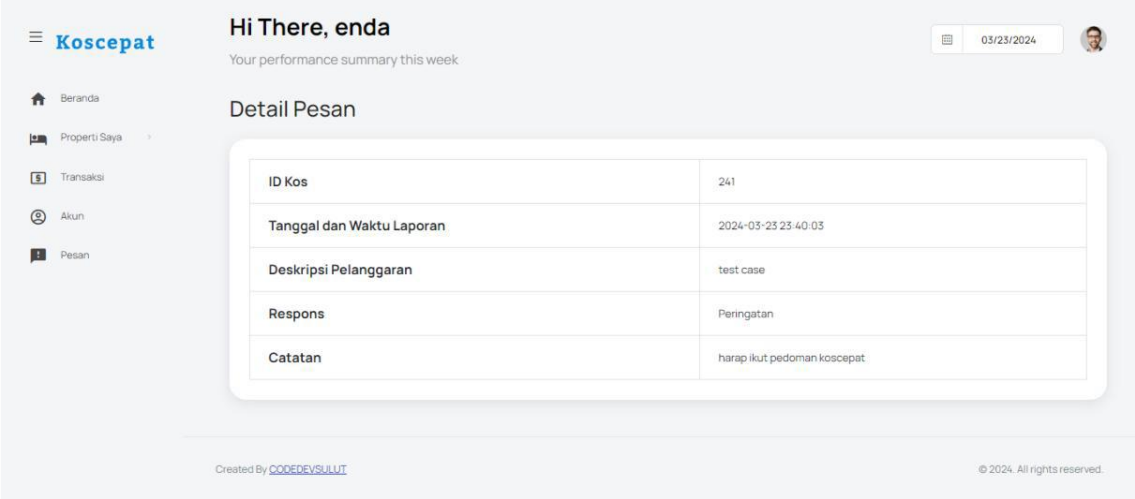

Figure 12. System Message Page

6. Account Page: The account page allows boarding house owners to update their personal data.

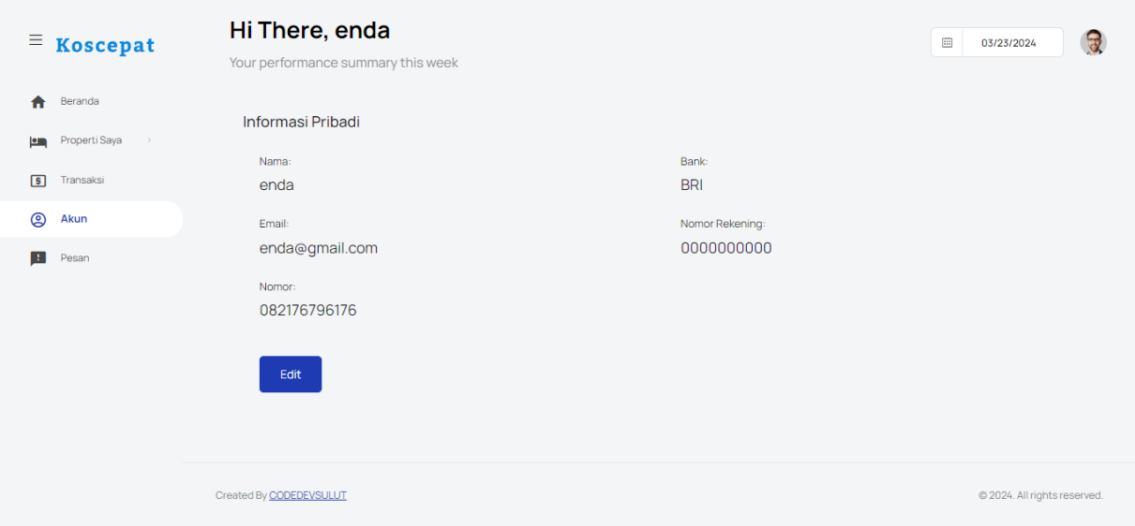

Figure 13. Boarding house owner profile page

C. Admin User

1. Home Page: This page allows admin users to view website progress.

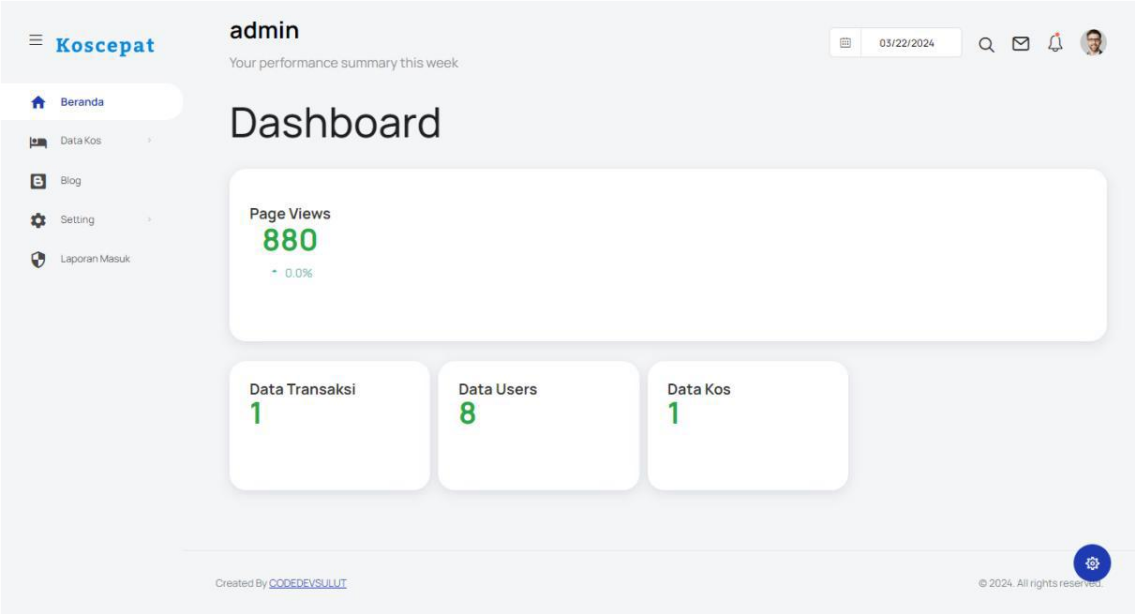

Figure 14. Admin dashboard page

2. Boarding House Data Page: This page allows admin users to view, update, and confirm boarding house data uploaded by boarding house owners.

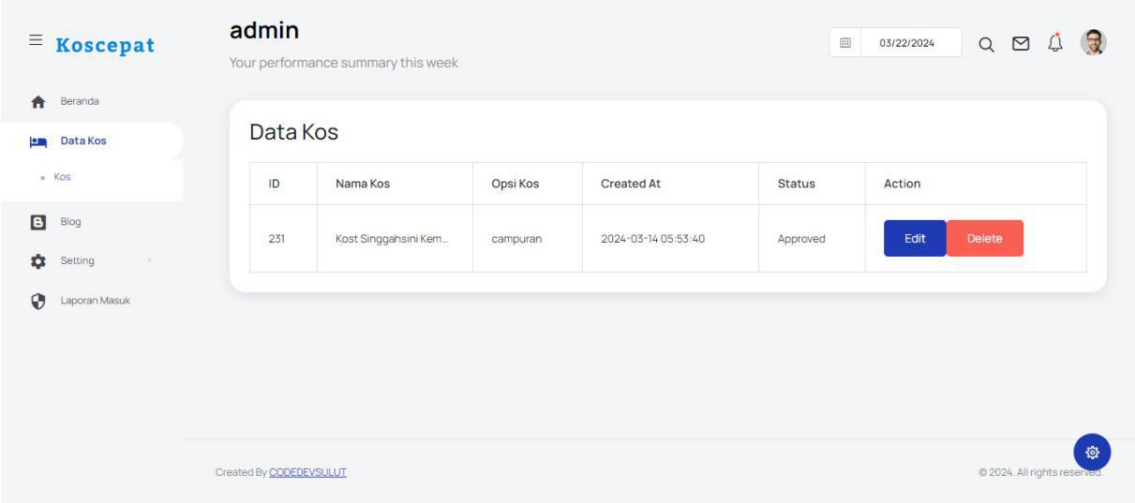

Figure 15. All boarding house data page.

3. Blog Page: This page is used by the admin to add blog posts.

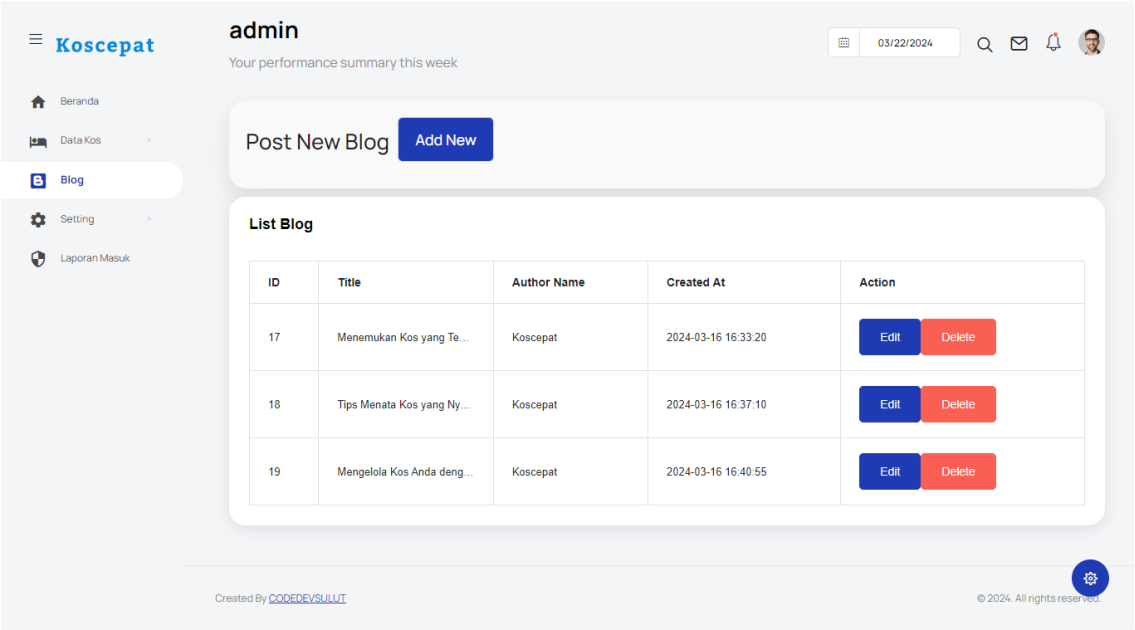

Figure 16. Blog post page

A. Functionality Development

Functionality development is a key stage in the implementation that ensures the system can function according to the predetermined needs and specifications. At this stage, various main features have been carefully developed to ensure the system can provide an optimal user experience. The following is a complete detail of the functionality development that has been carried out:

A. Boarding House Search

The boarding house search feature is one of the main features in the system, allowing users to search for boarding houses according to their desired criteria. The development process of the search feature involved the following steps:

- **Search Form Design:** Creation of an intuitive and user-friendly search form, allowing users to input criteria such as location.
- **Search Algorithm Implementation:** Development of an efficient search algorithm to analyze user search criteria and generate relevant results according to their preferences.
- **Search Results Display Design:** Design of a clean, informative, and easily navigable search results display, enabling users to quickly find boarding houses that suit their needs.

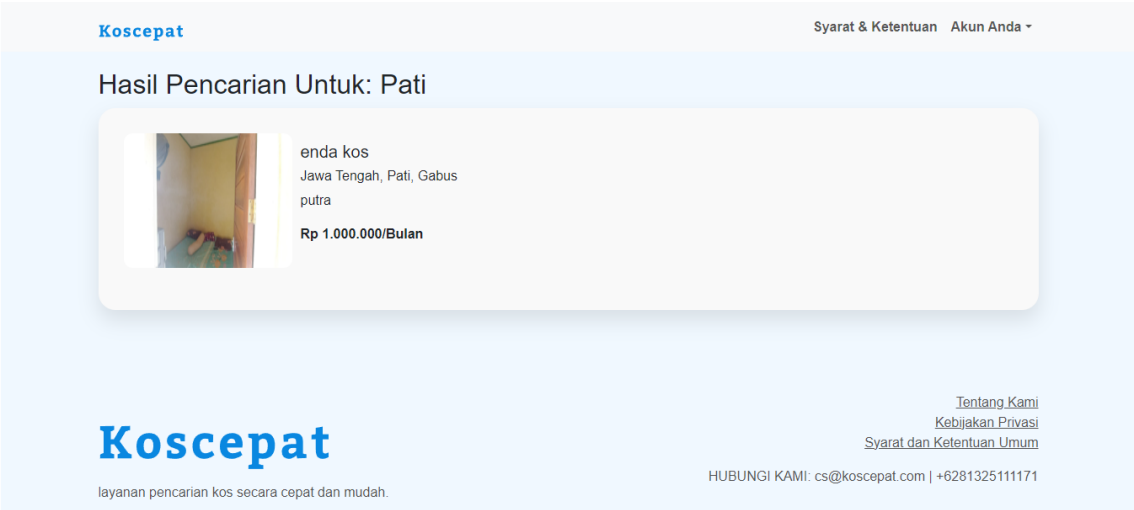

Figure 18 Boarding house search feature

B. Room Booking

The room booking feature allows users to make room reservations online through the system. The development process of the booking feature included the following steps:

- **Booking Form Creation:** Creation of a comprehensive and user-friendly booking form, allowing users to select available rooms, enter check-in dates, occupant names, boarding house rental options, and payment proof.
- **Room Availability Validation:** Implementation of business logic to validate the availability of the room selected by the user for the requested dates, as well as calculation of the total booking cost based on the room rate.
- **Payment:** Integration with a payment system where users can make payments according to the rate selected by the user, and then users can input payment proof in the provided form.

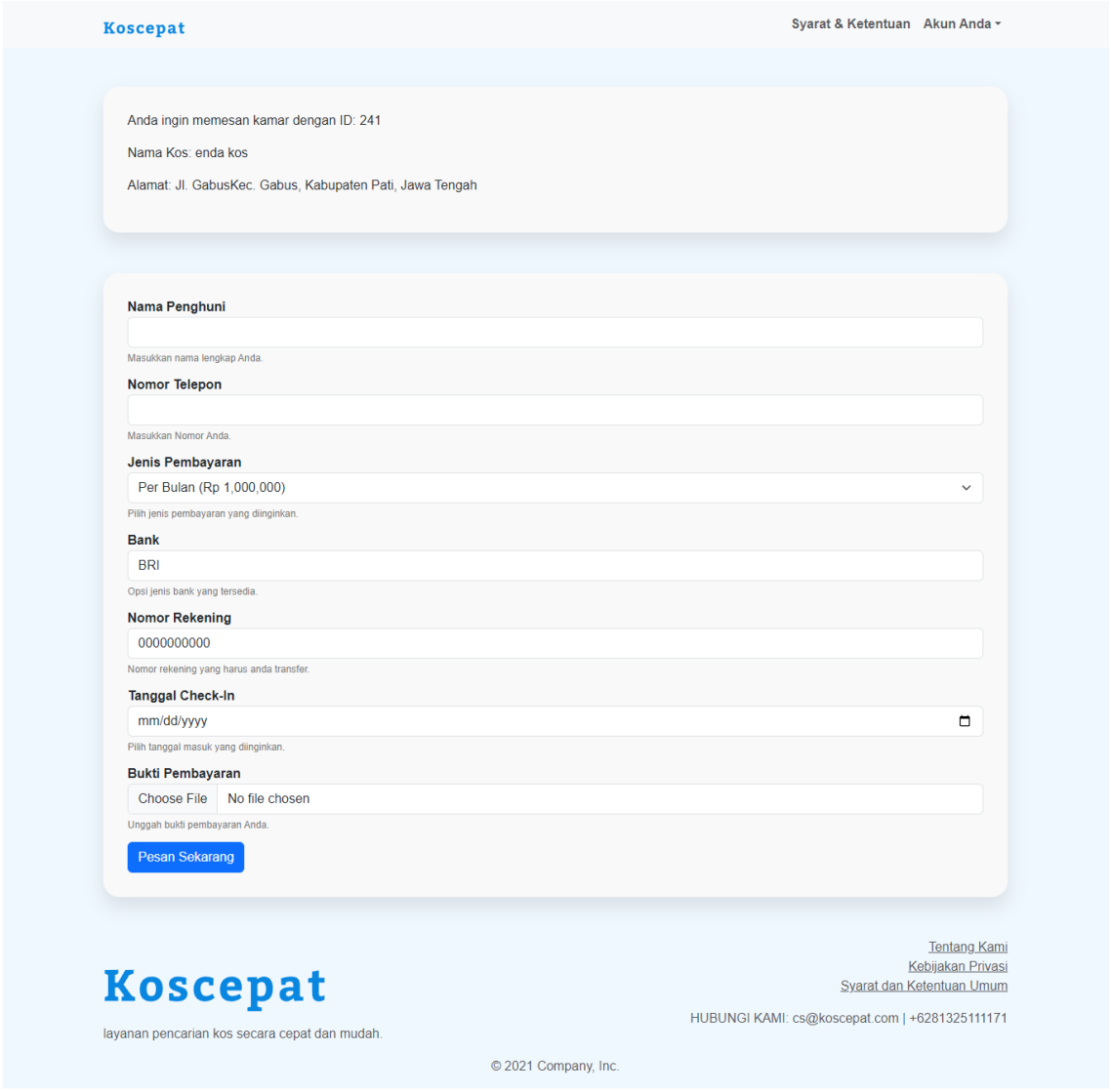

Figure 19 Boarding house booking feature

C. User Account Management

The user account management feature allows users to create and manage their accounts within the system. The development process of this feature involved the following steps:

- **New Account Registration:** Creation of a registration form allowing users to input their personal information and easily create a new account.

- **Account Information Editing:** Development of an account information editing feature allowing users to update their personal information such as address, phone number, and others.

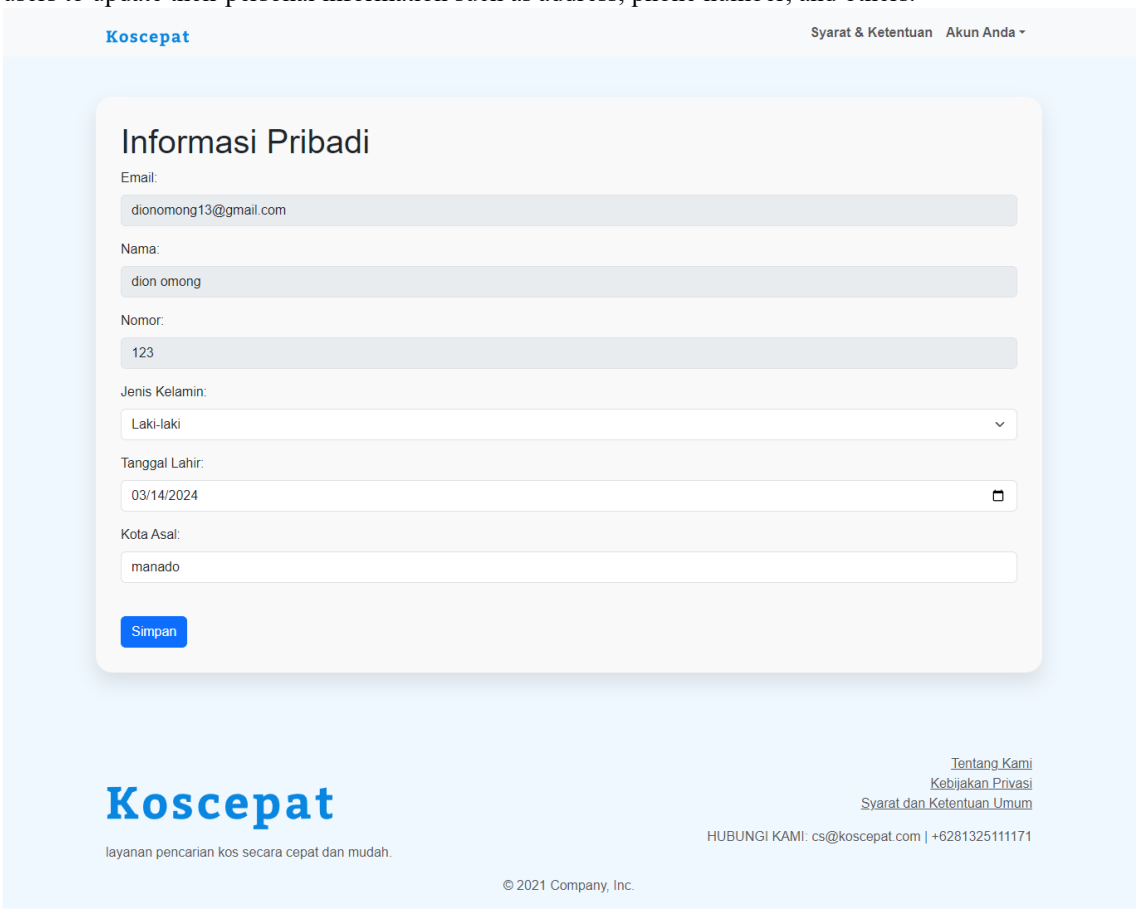

Figure 20. User personal data update feature

D. Boarding House Recommendations

In addition to main features like search, booking, and user account management, functionality development also involved creating a boarding house recommendation feature. This feature aims to provide boarding house recommendations to users based on User Location and Location Filter. The following steps were taken in developing this feature:

- **User Location Determination:** The system obtains the user's location using geolocation services.
- **Filtering Boarding Houses Based on Location:** Filtering boarding houses based on location is done by obtaining location data from each boarding house listed in the system.

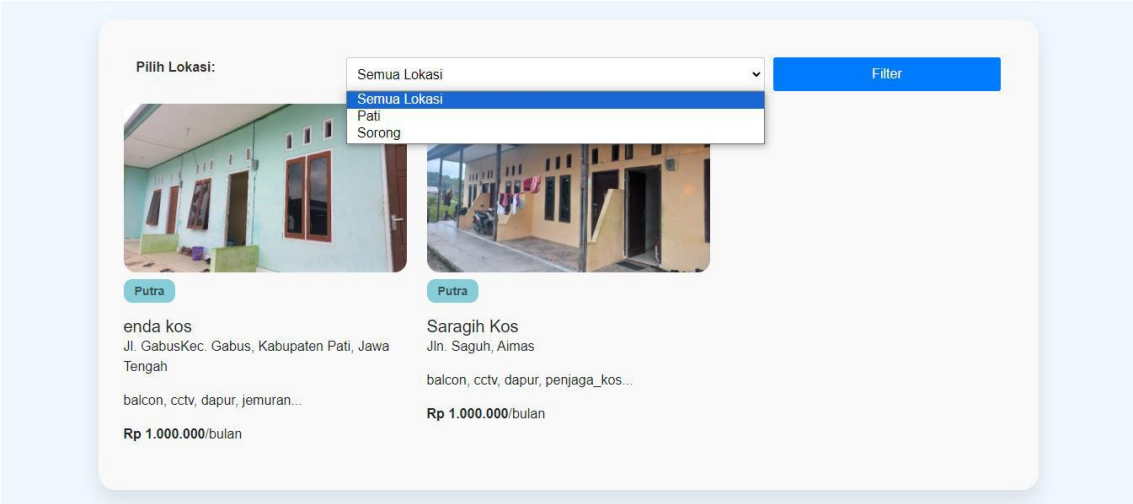

Figure 21 Boarding house recommendation feature

With this comprehensive functionality development, the boarding house information system successfully meets user needs and provides a satisfying user experience with optimal functionality. These steps are an integral part of the successful system development process.

Database Implementation

The implementation of the MySQL database is a crucial step in building the boarding house information system. The database is used to store all necessary information related to boarding houses, users, and transactions required by the system. In this implementation stage, the database structure has been carefully designed and implemented to ensure the system operates efficiently and reliably. The following are details regarding the database implementation:

A. Database Structure Design

The database implementation process began with designing a database structure suitable for the system's needs. The structure must be able to store the information required by the system efficiently. Key tables in the database include:

- **Boarding Houses Table:** This table contains information about each boarding house registered in the system, such as name, options, description, rules, year built. The boarding house table has relationships with other tables like the address, facilities, boarding house photos, and room availability tables.

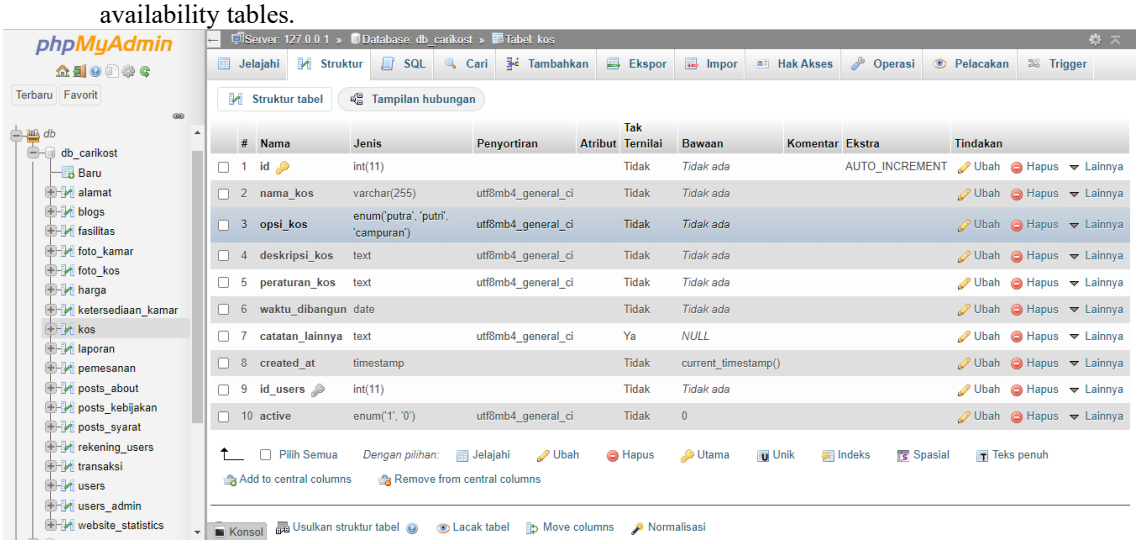

Figure 22 Boarding houses table

Users Table: This table contains information about system users, such as name, email address, phone number, password, role, and other information.

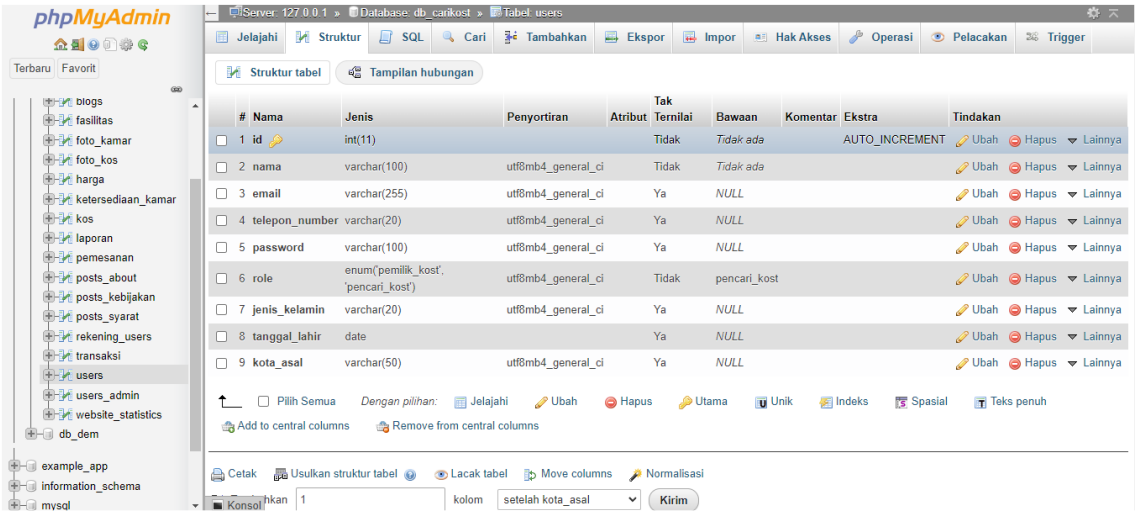

Figure 23 Users table

- **Bookings Table:** This table is used to store information about each room booking made by users, including details of the booked room, check-in date, and payment status.

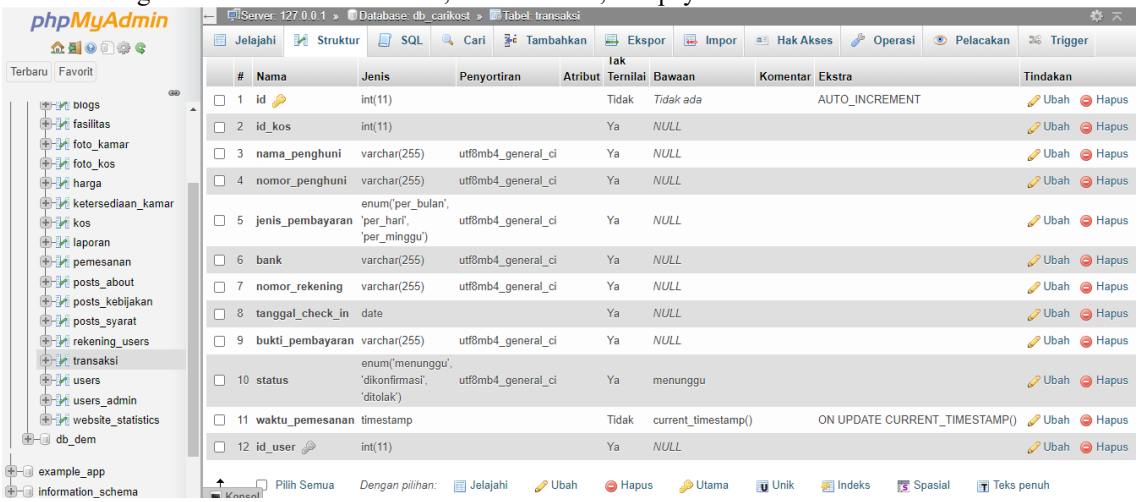

Figure 24 Boarding house bookings table

Besides the main tables above, several other tables are used in the system to enable complex functionality. Other tables used in the system include:

- **Admin User Table:** The Admin User table stores information about system administrators responsible for system management and administration. It includes attributes such as Admin ID, username, encrypted password, and admin access rights.
- **Blog Table:** The Blog table stores the content of articles or blog posts accessible to users. It includes attributes such as Blog ID, title, content, post date, and author.
- **Statistics Table:** The Statistics table records statistical data related to system usage, such as the number of registered users, number of room bookings. This table logs information about user activity within the system for further analysis and reporting.

B. Data Acquisition and Input Methods

In the implementation phase of the boarding house information system, a detailed explanation is provided regarding the methods used for data acquisition and input. These steps are crucial to ensure the system's functionality runs smoothly and effectively meets user needs. The data management process includes boarding house data, user data, and booking data, each playing a vital role in the overall operation of the system.

First, for acquiring boarding house data, the system provides an administrative interface that allows boarding house owners or administrators to input information related to boarding houses into the system. The steps begin with logging into the system using a predefined administrator account. After logging in,

the administrator can access the prepared boarding house data entry form. The information entered includes details such as the boarding house name, address, available facilities, room prices, and room availability. The administrator can also upload images of the boarding house to provide users with better visualization. Subsequently, after all information is filled in, the boarding house data is saved into the system's database to be accessed by users.

Second, the process of acquiring user data is done through the account registration page provided within the system. Users access this page to create a new account by filling out the provided registration form. The data entered by users includes personal information such as name, email address, phone number, etc. After the user completes the form and the entered data is successfully verified by the system, the user's account information is stored in the system's database for use in the booking process.

Finally, for inputting booking data, users complete the booking process through the interface provided in the system. The user selects the desired room from the list of available rooms, fills out the booking form with details such as name, phone number, price, payment proof, and check-in date. After completing the booking, the system saves the booking information and sends a booking confirmation to the boarding house owner. Thus, the process of data acquisition and input in the boarding house information system is a crucial step that needs to be carefully implemented to ensure the smooth operation of the overall system.

C. Boarding House Data Acquisition

Boarding house data acquisition is carried out through the boarding house owner dashboard interface provided in the system. The owner can access this interface to input detailed information about each boarding house to be registered. The data acquisition process includes the following steps:

1. **Owner Registration:** The boarding house owner registers an account in the system using predetermined credentials.
2. **Owner Login:** The boarding house owner logs into the system using the established credentials.
3. **Access Owner Interface:** After successful login, the owner is directed to the administrative interface allowing them to manage boarding house data.
4. **Boarding House Data Entry Form:** The owner fills out the provided form with detailed information about the boarding house, including name, address, available facilities, room prices, and room availability.
5. **Image Upload:** The owner can upload images of the boarding house to provide better visualization for users.
6. **Save Data:** After all information is filled in, the owner saves the boarding house data into the system.

D. User Data Acquisition

User data is obtained through the account registration process by users via the user interface provided in the system. The user data acquisition process involves the following steps:

1. **Account Registration:** The user accesses the account registration page and fills out the registration form with their personal information.
2. **Data Storage:** After the user data is verified, the user's account information is stored in the system's database.

E. Booking Data Input

Booking data is input into the system through the booking interface available to users. The booking data input process involves the following steps:

1. **Room Selection:** The user browses the list of available boarding houses and selects the desired one.
2. **Filling out the Booking Form:** The user fills out the booking form with details such as check-in date and occupant names.
3. **Payment:** The user makes a payment according to the applicable rate using the payment method provided within the system.
4. **Booking Confirmation:** After successful payment, the system saves the booking information and sends a booking confirmation to the user (and likely the owner).

F. System Performance Evaluation

A deep analysis of the performance of the web-based boarding house information system using PHP and MySQL technology. System performance evaluation was conducted using a comprehensive approach, including measuring response times.

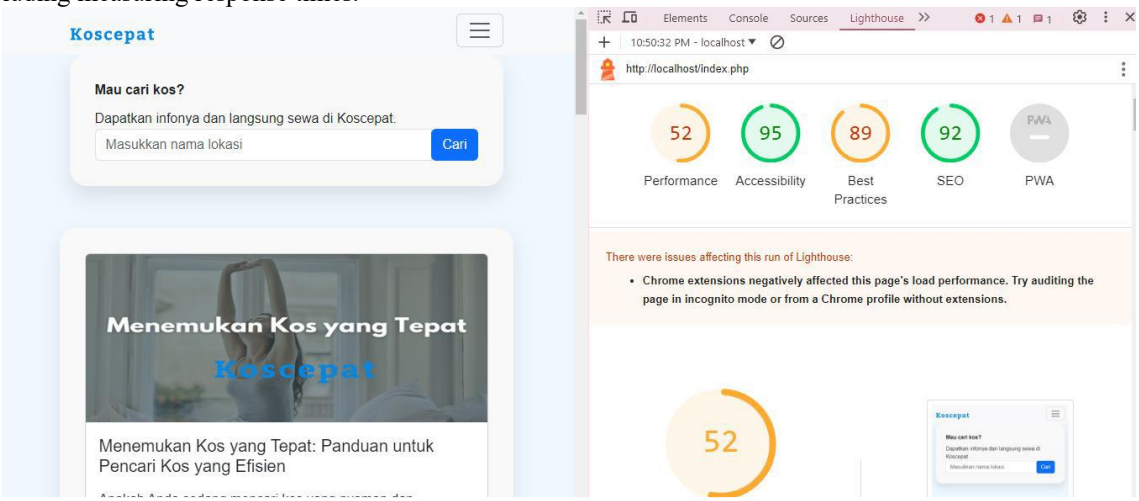

Figure 25. Website performance

G. Response Time Measurement

System response time measurement was conducted to evaluate how quickly the system responds to user requests. The method used for this measurement was employing response time measurement software like Lighthouse. The obtained data was analyzed to determine the system's average response time, as well as the maximum and minimum response times.

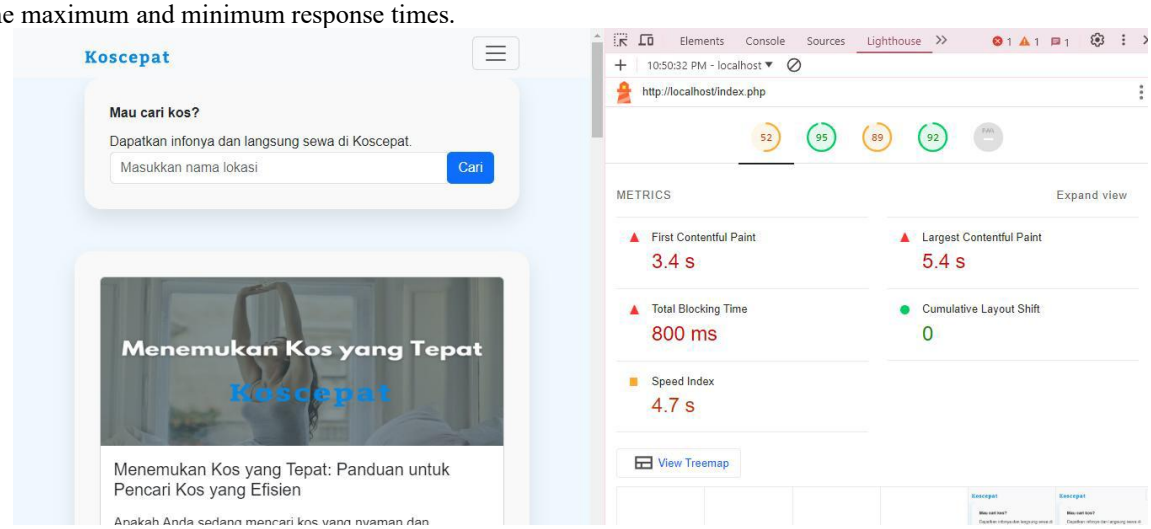

Figure 26. Website speed

H. System Functional Testing

System reliability was evaluated by testing the stability and availability of the system during normal use. During testing, no serious issues such as crashes or errors that could disrupt users in using the system were found.

TABLE I.
System Testing

No	Statement	Assessment	
		Yes	No
1	If the username and password are incorrect or the username is not registered, cannot log in to the system	Yes	
2	The system can display boarding house data	Yes	
3	The system can process boarding house data by adding new data and the system can delete boarding house data	Yes	
4	The system can provide boarding house recommendations based on the user's location	Yes	

5	The system can display boarding house data based on the search feature	Yes
6	Users can make boarding house bookings through the system	Yes
7	The system can display the booking status to the user	Yes

IV. CONCLUSION AND SUGGESTIONS

A. The Conclusion

This research has successfully developed a web-based boarding house information system using PHP and MySQL in Sorong Regency. Based on the development and evaluation results, I have concluded the following:

- Web-Based System Development: Through the use of PHP and MySQL technology, we have successfully developed a boarding house information system that allows boarding house owners to efficiently manage boarding house data, payments, and other information through an intuitive web interface.
- System Performance: The system performance evaluation shows that the system is capable of responding quickly to user requests. System reliability is also quite good, with adequate recovery capabilities from potential failures.
- Potential for Further Development: There is potential for further development of this system, such as adding additional features to increase functionality and flexibility. Furthermore, improvements to data security also need to be further considered.

B. Recommendations

Based on the conclusions above, there are several recommendations for the future development and improvement of the web-based boarding house information system:

- Feature Development: Carry out further development by adding new features that can increase the system's added value, such as integration with online payment systems, automatic notifications to tenants, or property maintenance scheduling.
- Performance Optimization: Further optimize system performance, including increasing the speed and efficiency of data processing and improving the system's response to user requests.
- Security Enhancement: Strengthen system security by implementing more advanced information security techniques, such as data encryption, input validation, and stricter access management.
- User Training: Conduct regular training for system users to ensure they fully understand how to use all available features and maximize the benefits of the system.
- Mobile Development: Develop a mobile version of the system or a mobile application that is compatible with various platforms to provide more flexible access to users.

V. REFERENCES

[1] Abdul Kadir, "Buku Pintar Programmer Pemula PHP", MediaKom, 2013, Yoyakarta.

[2] Ariesto Hadi Sutopo, "Teknologi Informasi dan Komunikasi dalam pendidikan", Graha Ilmu, 2012, Yogyakarta.

[3] Janner Simarmata, Romindo, dkk. "Metodologi Riset Bidang Sistem Informasi Dan Komputer", Yayasan Kita Menulis, 2021, Sumatera Utara..

[4] Muharto dan Arisandy Ambarita, M.Kom. "Metode Penelitian Sistem Informasi : Mengatasi Kesulitan Mahasiswa dalam menyusun Proposal Penelitian, Depublish, 2016, Yogyakarta.

[5] Mei Prabowo, M,Kom. "Metodologi Pengembangan Sistem Informasi", Lembaga Penelitian dan Pengabdian kepada Masyarakat (LP2M) IAIN Salatiga, 2020, Salatiga.

[6] Priyanto Hidayatullah, "Pemrograman web", Penerbit Informatika Bandung, 2021, Bandung.

[7] Riri fitri sari, "Rekayasa Perangkat Lunak Berorientasi Objek Menggunakan PHP", Cv andi offset, 2021, Yogyakarta.

[8] Rohi Abdulloh, "7 In 1 Pemrograman Web Untuk Pemula", PT Gramedia, 2021 Jakarta.

[9] Riyanto, "Serba Gratis E-mail, Messenger, Blog, Domain, Hosting, CMS for Blog & E-commerce", Penerbit Gava Media, 2012, Yogyakarta.

[10] Uus Rusmawan, "Teknik Penulisan Tugas Akhir Dan Skripsi Pemrograman" ,PT Gramedia 2021 Jakarta.

*[11] Dako, M. R. D. R., Hidayat, I., Asmara, B. P., & Syahrir. (2025). Pengembangan website untuk manajemen kelas secara digital dengan metode FDD (Feature Driven Development). *Nusantara Journal of Multidisciplinary Science, 3*(1), 142–153.*